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## DISEASES OF THE NOSE

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*Diseases of the nasal sinuses.* Connected with the principal cavity of the nose are several secondary chambers, two of them of considerable size. These secondary cavities are often the seat of disease and when diseased they become areas of importance. In health we do not know what their exact function may be.

The Antrum of Highmore is a large pyramidal cavity situated in the superior maxillary bone. It lies immediately above the roots of the molar and canine teeth and extends upwards to the lower margins of the orbit. Its size and shape in the average individual is not unlike a Brazil nut. This large cavity is lined with mucous membrane similar to that of the nasal cavity and has a normal opening into the nose. The Antrum of Highmore is subject to attacks of disease from above and below. Diseased molar teeth frequently puncture the floor of the antrum and develop an acute inflammation within the cavity. Acute infections of the nasal cavity itself, not infrequently extend through the normal opening into the antrum giving rise to acute antrum disease. Chronic disease of the nose, also, frequently involves the Antrum of Highmore. "Nasal catarrh" is frequently chronic disease of the Antrum of Highmore. "Neuralgia of the face" is the term the laity usually give for acute infection of the Antrum of Highmore. Disease of this cavity is usually unrecognized both in its acute and chronic types. Many people have a diseased condition of this structure for years. When the process is chronic, there is little or no pain. Occasionally a bad cold changes the condition from chronic to acute and then the sufferer is supposed to have "neuralgia." Chronic inflammation of this cavity often produces a very copious, thick discharge which passes downward and backward into the throat. Such a condition is usually diagnosed as "catarrh."

The principal symptom of acute infection of the Antrum of Highmore is a hard, boring pain situated under the eye and at the side of the nose. The pain is often associated with general headache which, in a measure, disguises the localized pain. There is often no local tenderness to pressure. It may be present but it is often absent. In the early stages of an acute infection of the antrum, there is little or no

secretion in the nose. Later there is a profuse secretion from the side of the nose which is affected. The pain is caused by the accumulation of pus which is confined within the cavity by occlusion of the normal opening into the nasal cavity. Diagnosis of acute antrum disease is very simple if the proper apparatus is available. If the patient is taken into a perfectly dark room and a small electric light is placed in his mouth, the normal side of the face will shine brightly while the diseased side will be perfectly dark. When pus is present this is a very spectacular and interesting procedure. The treatment of acute antrum disease is not easy. In the very early stages, the application of cold in the form of an ice bag will occasionally abort it. With certain individuals, heat gives most relief. Usually, however, neither heat nor cold will ease the patient's suffering. In such a case an opening must be made into the antrum in order that the confined pus may escape. Formerly such an opening was made by removing a tooth and boring through its socket in the jaw into the antrum. This method is seldom used at the present time. The modern procedure is to make an opening in the nose under the lower turbinate. A wide variety of instruments has been devised for the purpose. It requires a very strong instrument, as the bony wall is often thick and hard to break through. The pain subsides very quickly after an opening is made and the pressure is relieved. If the opening is small, it is apt to heal too quickly and the pain returns. Some of the instruments used to puncture the antrum are hollow, in order that a rubber tube may be attached to them and the cavity be washed out immediately. It is a common practice, after an opening is made into the antrum, to wash out the cavity daily with a saline solution until the infection has passed. In case surgical relief is not possible, solutions of cocaine or adrenalin may give more or less relief, at least for the time being. The proper methods of applying such solutions will be given under the treatment for acute frontal sinusitis.

The treatment of chronic disease of the Antrum of Highmore is almost entirely surgical. The diagnosis of such a condition is difficult, even to an experienced rhinologist. Both transillumination (electric light in the patient's mouth in a dark room) and radiographs (X-ray plates) are often deceptive. Perfectly normal X-ray plates are not infrequently seen in cases where operation proves the cavity to contain pus and granulation tissue. Chronic disease of the Antrum of Highmore is a frequent cause of rheumatism and indigestion. One of my cases of chronic antrum disease produced such rheumatism that the patient, a strong man formerly, was entirely unable to perform his daily work. All manner of rheumatic remedies were used upon this man with no

results. Finally he came to Boston. A consulting physician made a diagnosis of infection either in the tonsils or antrum. Both transillumination and a radiograph showed the right antrum to be diseased; operation found it to be thoroughly diseased. The antrum was opened through the mouth. In due course of time the patient was able to resume his work. No medicine was used in this case after the operation. Removing the infection in the antrum caused his rheumatic condition largely to disappear.

A considerable number of my patients have had marked relief from indigestion after radical antrum operations. Patients suffering from indigestion should always have a careful examination made of the teeth, tonsils and nasal sinuses, as any one of them may be the exciting cause of the digestive disturbance. If the indigestion is from one of the above sources, no amount of treatment directed to the stomach alone will accomplish any lasting results. It has taken the medical profession a very long time to recognize this fact.

The frontal sinuses are two large cavities situated in the frontal bone. They lie immediately over the inner half of the orbits. The size of the frontal sinuses varies tremendously. In some individuals they are very large, in others very small. They are lined with mucous membrane and in health are of little importance. When acutely inflamed, pain is present to a marked degree. The pain of acute frontal sinusitis is peculiar inasmuch as it often begins in the late morning gradually subsiding in the afternoon. Certain cases have complete relief of pain in the afternoon and evening but have the pain return again the following morning. Because of this peculiarity, the discomforts of this particular disease are sometimes referred to as "ten o'clock headaches." While the pain of acute frontal sinusitis is often limited more or less to the morning, other individuals are not so fortunate, as they have pain continually day and night. The pain of frontal sinus origin is usually "one sided;" that is to say, the pain is much greater on one side of the forehead. Tenderness to pressure is a marked symptom of frontal sinus disease, particularly if the pressure is made under the upper surface of the orbit. With such a disease actively present, pressure applied with the finger upon the upper eyelid, in the direction upward and inward, will cause the patient to cry out with pain. Acute frontal sinus inflammation is common with or after head colds, particularly of the "grippe" type. It is also probably quite common in scarlet fever and measles, occurring as part of the general infection of all the nasal cavities. The tremendous nasal discharges often seen in the contagious diseases indicate that the antrum, ethmoid, and frontal sinuses are involved. Acute frontal sinus pain is often referred to as "neuralgia of the eye or forehead."

The diagnosis of acute frontal sinusitis is made by the one sided pain, tenderness upon pressure in but one side of the forehead and by the appearance of pus in one side of the nose and not in the other.

Unlike antrum disease, acute frontal disease seldom requires surgical treatment for the acute attack. The average case usually quiets down under proper local treatment. In rare cases, pus may be detected by pressure with the finger, but such a case would usually have extended over a considerable length of time and would have been untreated in its early stages. Such cases used to be fairly common but I have not seen one in the past few years. When the pain of acute frontal sinusitis first develops, the patient should be given calomel, two or three grains at night, followed by a saline in the morning. A hot bath followed by Dover's powder and a hot drink is also good treatment. For the pain, ice bag or cold compresses give most relief though a few patients find heat more efficacious. A solution of adrenalin, cocaine, or argyrol or some combination of the three together often give marked relief. Unless used by a specialist, they are best given in the form of a spray. The solutions act more powerfully upon the condition if applied upon cotton which is placed for several minutes directly over the opening of the frontal sinus into the nasal cavity. This is a difficult procedure and can only be performed by one having considerable experience with nasal work. Solutions of cocaine or adrenalin should not be used by persons ignorant of their dangers.

Repeated attacks of acute frontal sinus diseases are highly suspicious of a diseased process or a mechanical obstruction within the nose, either of which should be removed after an acute attack has subsided, or if the attack is severe, during the acute process. Often extreme suffering is quickly relieved by the latter way. I do not believe in external operation upon the frontal sinus except in extreme cases. External operations were quite common a few years ago but are looked upon with disfavor by conservative surgeons at the present time.

The ethmoid sinus is a collection of cells situated in the interior of the ethmoid bone. This bone is the thinnest, lightest bone in the human body. It resembles a honey-comb to a considerable extent. The bone is attached to the inner surface of the orbit and the under surface of the roof of the nose. The cells are divided into an anterior and posterior group. The anterior cells open into the front of the nose and the posterior into the back. They are lined with mucous membrane and are quite susceptible to diseased conditions both acute and chronic. The ethmoid cells are more commonly diseased than are either the frontal or the Antrum of Highmore. In marked cases of "nasal catarrh" the ethmoid cells are usually diseased. In my opinion diseased

conditions of both the frontal sinus and the antrum begin as disease in the ethmoid cells. (This of course is not true of antrum disease, arising from decayed teeth.) The most prominent symptom of ethmoid disease is the formation of polypi or pus, or both together in one or both sides of the nose.

Polypi are curious growths which occur in the nose. They resemble an oyster in shape, color and consistency. They vary in size from a small bean to several inches in length. There may be but one or they may be packed into the nose exactly like sardines in a box. I once took forty-nine from a man's nose. A considerable number is more common than one or two. When large numbers are present, the patient is entirely unable to breathe through the nose. The presence of polypi in numbers is positive proof of ethmoid disease. Patients who have large numbers of polypi are subject to constant bad colds, more or less headache and asthma. They also frequently suffer from indigestion. Certain cases have pus in the nose, others do not. Those having pus are most apt to have digestive disturbances and a disagreeable odor to the breath.

Acute inflammation of the ethmoid cells is very common during scarlet fever, measles and diphtheria. It is manifested by a profuse nasal discharge. It occasionally breaks through the thin bony wall of the orbit and an orbital abscess results. Ethmoiditis is a very common disease. It is the primary cause of hundreds of cases of deafness, rheumatism, headaches, digestive disturbances, anaemia, cough, loss of voice, chronic sore throat, etc. It is the primary cause of several diseased conditions of the eye and may finally result in blindness. In my opinion, chronic ethmoiditis is the most common disease of the nose and is of tremendous importance because of its influence upon other organs of the body. In my experience, Hebrews and Germans seem to be particularly subject to ethmoid disease.

The treatment of ethmoid disease is almost entirely surgical. Local washes, sprays, ointments, etc., are absolutely useless. Surgery of the ethmoid and frontal sinuses is very dangerous and should be attempted only by surgeons having wide experience with this kind of work. In the hands of skillful, experienced operators, many ethmoid and frontal disease patients have obtained great relief from all manner of distressing symptoms.